

1/18

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1 ccaaaaaaatt gttctcttgg gggttggggc gacaagcggg aaggaggggc
51 aatttgggca aattggctta ttgccacgca agggctttta caccttaggt
101 tgggtgggttc acaggttgca ggcaaccac catggcacac gtatacctat
151 gtaaccaacc tgcacatca tgtatccta tgtaaccaac ctggtacatt
201 ctgcacacgt atcccaggac tttagagtga aaaaaaaagt ggtgtgtaga
251 aaaatcacct gcaatctcag catagttaac gcttagtaca tttcagagag
301 agagggtgac aggaaaggga ggatgagagt gggtttaaga cacaagggtca
351 tattataaaa tcagggtctc tggaagttaa gtcccaaaac cacacatctc
401 ataatcccct gcagtgttg attaaaatgc aacatcacta aggccacaga
451 ctgagactct ggagaaagat ccagaaaact gcccgtttta taaacatttg
501 ggcgattctt acggcctcta aagaccaaga accactgctg cctagagctc
551 tgctctcttc attgaacaat acaagaggag tgtgtaggtg gacaccacc
601 acttccaaca gcttaggaga gcccttgagt atggattgat gtattaaaat
651 ttattgaatc acatgtgag attttcacca gctgcccgtg gggatctggg
701 catttattcc catattgcac tggctggctg gaagccagca gcataaactc
751 cagggtgtt ctgtcaacc ccaccagact caccctctc caccagcccc
801 ggcaggcttc tccttccatc tctctgaagc aacttactga tgggccctgc
851 cagccaatca cagccagaat aacgtatgat gtcaccagca gccaatcaga
901 gctcctcgtc agcatatgca gaattctgtc attttactag ggtgatgaaa
951 ttcccaagca acaccatcct tttcagataa gggcactgag gctgagagag
1001 gagctgaaac ctaccgggg tcaccacaca cagggtggoa ggctgggacc
1051 agaaaccagg actgttgact gcagcccggg attcattctt tccatagccc
1101 acagggtgtt caaagacccc agggcctagt cagaggctcc tccttctctg
1151 agagttcctg gcacagaagt tgaagctcag cacagcccc taacccccaa
1201 ctctctctgc aaggcctcag gggtcagaac actggtggag cagatcattt
1251 agcctctgga ttttagggcc atggtagagg ggggtgtgcc ctaaattcca
1301 gccctggtct cagcccaaca ccctccaaga agaaattaga ggggccatgg
1351 ccaggtgtg ctagccgttg cttatgagca gattacaaga agggactaag
1401 acaaggactc acgtgtggag gtcctggctt agggagtcaa gtgagggcgg
1451 ctgagactc acgtgggcag tgccagcctc taagagtggg cagccggact
1501 ggccacagag tccCAGGGAG TCCACCAGC CTAGTCGCCA GACCTTCTGT
1551 GGGATCATCG GACCCACCTg gaaccacc tgtgagtaca aggtgcccc
1601 ggtggactgg gatggggctt tgaggcctc aggggttggat ggccatcttg
1651 cgtattttgtg tgggatatgc acacacaggc agcacatgcg cagggtgtgtg
1701 ggcacctgtg tgtctgtgca aatgccctga ggtgggaatg agcttggtgt
1751 gcatcaggag cgacagccag ccagtgtggc tgcagcaaaa cacacaggga
1801 aagaatggag ggggcatcaa tctactgaaa aattatttat agagctcccc
1851 ctaaaaaaa gaaggtctct tctttcgata gaagaaggga gagaggggtt
1901 ttgtccttat aaatataagg gaggagccgc ccctcaaaaa ataaggagg
1951 gaggacceaa gaccccggtg gttgtgtgtt ttccaggggg agctcgaacc
2001 ctttagaggg agcgtgggag aaccgctgta ttcaggcctc tcgagagaaa
2051 aggagcggcc gcccaaaaaa tatccctccc gggcgataag aaatggtggc
2101 ctctctcaaa aagatgaaga ggaagccgga gttgtatgtg ttgatatttt
2151 taaaactcca ggtagnnnnn nnnntgctt cagtaaattt ttattgagcg
2201 ccttctacga gaacacaaga ggagcttcca ttctgaggag gaaacaggca
2251 ggaaacaggc agatatcctg tataatttca agtagtgata agtgctctct
2301 agaaatatca agcaagggtg ggagacacag agcaccgggt gcagtggggc
2351 tctattttcca ggttggatgg ttgggaacat cttttctaaa gggaacctgg
2401 agtgggaagg aaccatgcag gtatctcagg aagagcttcc tccaggcagg
2451 aagatcagca ggtggaaagg ccctggagcc accattcagt aaacatcatt
2501 tgagcatctc taccagctag gttccattat gggaatggga atatggtggt
2551 ggacagggct gcctggtccc ttccatactt ctcacactag ggtggttgag
2601 agagcttggg agctaacgaa caagatgggc tgagaacact gcctagccca
2651 gaggacctga gcttagtgtg tagacattgc tgctgttact gcctttgtcg
2701 ttgtattatt tatttattta tttattgatc ttaagacaga gttttgctct

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FIG.1A

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2751 tcttaccag gcttgagtg aatggcgtga tctcagctca ctgcaacctc
2801 cacctcctgg gatcaagcga ttctcctgcc tcagcctcct gagtagctgg
2851 gattacaggc acccgcacca cgcctggata atttttttgt attttttagta
2901 gagacagggt ttcacatgt tggacaggct ggtctcgaac tcctgacctt
2951 aggtgatcca cctgcctcga cttcccaaag tgatgggatt ataggcatga
3001 gccactgctc ccagtgatga tagaaagtta aaggcacatg gcaatgcaca
3051 cgcctatcta cgtcttccct gccaaagcaa agggcagcct ctgggctcac
3101 tttcttgctg ttctacttcc aaaaggcagt cagaactggc agggccttgg
3151 agaccacttc atccacctcc tagggctcct atgggagagt tgaggctcag
3201 agcaggggag ggtcctgaca ggctctgacc agggcctctg atccctacaa
3251 acccccaatc ggtgtccctc tctaccagGA CCAAGCCCA CCTGCTGCAG
3301 CCACTGCCT GGCCATGACC ATCACTTACA CAAGCCAAGT GGCTAATGCC
3351 CGCTTAGGCT CCTTCTCCCG CCTGCTGCTG TGCTGGCGGG GCAGCATCTA
3401 CAAGCTGCTA TATGGCGAGT TCCTAATCTT CCTGCTCTGC TACTACATCA
3451 TCCGCTTTAT TTATAGGtaa agctggcagg gctgggccgg ggggcctggg
3501 aaggatgtgg ctggggctgg gagctgggag ctctggggg cctccagcc
3551 agctcagggc ccagtgcacc agtccactac aacactaagc tgggctcctg
3601 accagctcct gggcactgga gctgaggctg cgcgctggg gctgggcaga
3651 gtaaaagaag cacactgaga ggaagtctaa gccaggccag cagggtttta
3701 gccacccttc ctccaacccc agggaggacc ctggagccca ggctttgtct
3751 ggccccactc tactggcctg ttttactgaa tcccacacag actcataggc
3801 ccacatagta cattaaaaaa gagagagaga gagagagaga gagagagatg
3851 gagtctcact gtgttgctca ggctggcttc gaactcctag gctcaagcaa
3901 tccccctgcc ttagcctccc aaggggctgg gattacaggt gtgagctact
3951 gcacttgacc aaccacatgg tacttttttt ttttttttt ttttttgaga
4001 cagggtttca ctccatcacc caggctggag tgcagtggg gcaatcttgg
4051 ctactgttaa cctctgcctc ccaggtgcaa gcgattctcc tgccttagcc
4101 tcctgagtag ctggaattat aggcacacac caccacgcct ggctaatttt
4151 tttttttttc tgtattttta gtagagacag ggtttcatca tgttgacag
4201 gctgggtctt aaccctgac ctcaagtgat ccaccacct cggcctccca
4251 aagtgtctgg attacaggtg tcagccacca tgcacagccc acatggtaca
4301 ttttttaaaa ttatttttta attaaantgt ttatctaagg ccagtagcag
4351 tgactcgcgt ctgtaatccc agcactttga ggggccaagg tgcggggatc
4401 acttgagcct gggagttcag cgtgggcaac atagttagac cccgtctcta
4451 ccaaaaattt aaaaaattag ctgggagtgg tggcatttgc ctgtggtccc
4501 agctacttgg gaagctgagg tgtggggatg gctgaagcct gtgaggtcga
4551 ggctgcagtg agctatgatc acaccactgc acttcagcct gagtgcagg
4601 ctatctcaaa agcaaaacaaa ataagttaa tctaaacggt aaggtataat
4651 cacagaatat atgatagcat tttaaattga aaaagcatta atgattacat
4701 ggattgtaaa atatcaataa catgaaattc ttgtgttctt aataatgcta
4751 gcaacaaggc acatttggtt tttactaggg caccaaggta ctttaaaaaa
4801 agttagggcc agccacaggg gctcacacct gtaatcccag cactttggga
4851 ggccaaggca ggaggatcac ttgagcccag gaggtttaga cctgagcaac
4901 ataggagat cctgatcttg tctctataaa aaattaaaaa attggctagg
4951 ccttttggtt tacaccgta atcccagcac tttgggaggc cgaggcgggt
5001 ggatcatgag gtcaggagt tcaagaccagc ctggccaaca tagtgaaccc
5051 aatctctact ataaatacaa aaattagccg agtggggtgg cacgcacctg
5101 tagttccagc tactcaggag gatgaggccg gagaatcgct tgagcccggg
5151 aggcagaggc tgcagtgagc cgagaccatg ccattgcact ccagcctagg
5201 tgacagagtg agactccgtc ttaaaataat attaaaatct taaaatgatc
5251 tgggcatggt ggcttatgcc tgtagtccca cccagctctt caggaggctg
5301 aagcgggagg attgcttcag cccaggaggt tgaggctgca gtgagtcag
5351 actgtgccgc tgcccttgag cctgggtaac agagcaagac cctatctcaa
5401 aacaaaacaa caaacaacaa aacaaacaaa aaccaataaa ccaaaaacat
5451 ttatctaaac aataaaaataa aggacagata taatcaccga atatatgata

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FIG. 1B

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5501 gcatttttaa ttgaaaaagc actaatgact acaatggatt ataaaaacatc
5551 aaatacataa aattcttaag ttctctctaa taccaaatac aaagcacatt
5601 ggtcttttgg ttttacttgg gcaccaatgc atgctgaaaa agagtcgttc
5651 atttttttag gtagttttag gttcacagca aaattgagca gaaggtagag
5701 ttctcatgtg tctctttgct cctcaccctg cccccagcct cccactatc
5751 aacacccccca cactacagtg gtagatttat tacaatccct gaaccacag
5801 tgacacatca ctatcaccca aagttcatag cgtacagcag ggttactct
5851 tgggcagtac attccatggg ttggataaaa tgtgtaatga tgtctccacc
5901 atcacagcat caggcagagt agtttactg ctctaacaaa atcctctgcc
5951 tattcacccc tctcattaaa gccaaacact ctgtttcctt ttttctttt
6001 agagacagtg tctcgctctg tcaaccaggc tgaagtgcaa tggcaatcac
6051 agcccattgc agcctccaac tcctgggctc aagtgtcct cctatctcag
6101 cctccagtggt ctacgactgc aggcatacgg caacggcacc caactaattt
6151 tttgtagaga tagggtcttg ctatgttgac caggatggtc ttgaactctt
6201 ggtcctgcct tagcctccca gagctctggg attacaggcg tgaaccaccg
6251 tgcccgtccc aaacactctg ttctgacctg cttttaaaca actgaccctt
6301 ggatgcattc aaaggatcag ggtgtctgaa actggcctct gcagcaggac
6351 cttccttctc acacatctcc cagtggccag tgtgaggatt ctccccacaa
6401 gaaaccactg gagggggcct cctcctgtcc ggggttgggg ctgtacaagg
6451 agcatcatgg acctggctca ggccctcagg ggggccctgg gctggggaaa
6501 atgtgggata gcatcgaggc agtcccactc ctaccagggg ccgggctaga
6551 cctggggaca gtctcagcca tctcctcgct gcgtccacac aattccaccc
6601 ccacccccac cccagGCTG GCCCTCACGG AAGAACAACA GCTGATGTTT
6651 GAGAAACTGA CTCTGATTG CGACAGCTAC ATCCAGCTCA TCCCCATTTC
6701 CTTCGTGCTG Ggtgagttcc cccttctggc tgttccgggt ccctgtggcc
6751 gccagggtc cagacaggcc aggggaggat cagcaggagc tgcggcaagg
6801 ggctggggag ggggcggggg aacgccagcg gcaggctggc gcctctctgt
6851 agggaaaggt gcggactgca gccagagaaa ctgaagttag acgttaggta
6901 agacgtcctg ccgttagcaa tgaaaacccc attttctgag ggaagcgctg
6951 acatcatggt ccctggagcc cctgcgcggg aggggagggg gtctggcgga
7001 tttctgggac cagcaggggg acccccgggt gacagaaccc ttggggctct
7051 cgcgcctcca tgagaggctc tgcctgcctc tcgctcccgga gcgccttcca
7101 ggagggctgg gggctaggcc cgctcgcagc agaaagctgg aggagccgag
7151 gcatcgccgg gcgctggggc ctgggctctg gccgcagact ggcccctcgc
7201 cctcgcgcc ccgccccctc tgcccagGCT TCTACGTGAC GCTGGTCTGTG
7251 ACCCGTGGT GGAACCAGTA CGAGAACCCTG CCGTGGCCCCG ACCGCTCAT
7301 GAGCCTGGTG TCGGGCTTCG TCGAAGGCAA GGACGAGCAA GGCCGCTGC
7351 TCGGGCGCAC GCTCATCCGC TACGCCAACC TGGGCAACGT GCTCATCCTG
7401 CGCAGCGTCA GCACCGCAGT CTACAAGCGC TTCCCCAGCG CCCAGCACCT
7451 GGTGCAAGCA Ggtgggcgga ccgggagcaa cggggaggca ccgggcagag
7501 ccaggggccc agatgggcgc ggcaggaacg gaagatgggt ggagccaaag
7551 tcaccgggac tcgggggact gggacagagt cgggtgtctg aaggtggggc
7601 atttgggggt ccaattgggc gggacagagt agtctgaggc agggataagg
7651 gaggccagga gcccaccctc cgagagtagg agtctgaggc agggataagg
7701 acccttgagg gataatggaa agaagggtga cggcttggga actggtgagg
7751 tactagggtc tacttccctc tgcccttgcc cctcttgatc tccggtttcc
7801 actctggagg tatgggacat tggctctga cccccctca gcctggcctg
7851 acctggtcct ggttaataag acagaccag gctaggcgtg gtggctctcg
7901 cctgtaatcc cagtgtttta ggaggcaaag gtgggaagat cgcttgagcc
7951 cagctgtttg agacgcacct gagcaacata gcgagacccc catctctaca
8001 aaaacattaa aaattagcag ggcatgggtg cgtgtgcctg tagtctgagg
8051 ctgagtatcg ggaggctgag gcaggaggat cacttgagcc cagcagttcc
8101 aggtgcagtg gcgctaagat cgcaccgctg cactccaacc tcggtgacag
8151 agccagaccc ttctcttgga aataaataaa tacctgccc acatgctcag
8201 cacagaacag cacctagtag gtgctcagaa attttttgt tgttgaaaga

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FIG.1C

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8251 aagaggatgg caaaggagtg ctgaggttcc tataggtcag caggtgccgg  
8301 ccatcccttc tgcaggttct cccaccacc gccttcttca ctccactctg  
8351 cagGCTTTAT GACTCCGGCA GAACACAAGC AGTTGGAGAA ACTGAGCCTA  
8401 CCACACAACA TGTTCTGGGT GCCCTGGGTG TGGTTTGCCA ACCTGTCAAT  
8451 GAAGGCGTGG CTGGAGGTC GAATCCGGGA CCCTATCCTG CTCCAGAGCC  
8501 TGCTGAACgt gagccactg tacagacagg gctgccgcag agtgggaagg  
8551 gttgtggtcc acaggaaaca aggtttccta caaagagaag ccttgggccc  
8601 ctgaggggtct tccgagagcc ggagggtggg ttgcagaatc tttccaaca  
8651 gcaatccaca gaccgaggtg gtcccttatc agaggcccct ccctcttctc  
8701 caagtctgtg aggtcctggt tcccttttga tagatgagga agctgagaca  
8751 caaagaggtt tagtgagctt cccatggcca cacagccagg aatggaccat  
8801 aggtaccagg ccctggtacc tggagaagag gtgggggcga gcccagggtg  
8851 ggggcaggtg gtgttcagaa ccccatcccc ctcttctgcc cccagGAGA  
8901 TGAACACCTT GCGTACTCAG TGTGGACACC TGTATGCCA CGACTGGATT  
8951 AGTATCCAC TGGGTATAC ACAGgtgagg actaggctgg tgaggctgcc  
9001 cttttgggaa actgaggcta gaaggacca ggaagcagct ggggtgggaa  
9051 gggctcacct agaggctaag tggctcccct gggagtggg tccacacttt  
9101 gaagttgggt ctggactttg aagtgccaa ttctaagagt ccaggctcct  
9151 gcctggccca gtccagtaga ggcaatgtga ttatcccat attaaagaga  
9201 ggttggcagg gcacagtggc tcatgcatgt aatcccagca ctttgggaa  
9251 ctgaggcagg tggatcacct gaggtcagga gttcgagacc agcctggcca  
9301 acatggtgaa accccatctc tactgaaaat acagaattag ctgtgtggtg  
9351 gtgcacgcct gtaatcacag ctacttggga ggctgaggca ggagaatagc  
9401 ttgaacccgg gaggtggagg ttgcagttag ctgagatcat gccactgcac  
9451 tccagcctgg gcgacacagc aagactctgt ctcaaacaaa caaacaacaa  
9501 aacaaacaaa caaacaacaa aaggggttaa cagagcccct aagtcacata  
9551 agtgtgcaag tcagaacaag gccttgggtc cctgtctcag actcccagcc  
9601 cctggagcat cctgatttca gggttccac cttagccctt gctaccacat  
9651 cctcctctc ctcctcctcc tcccagGTGG TGACTGTGGC GGTGTACAGC  
9701 TTCTTCTGA CTTGTCTAGT TGGGCGGCAG TTTCTGAACC CAGCCAAGGC  
9751 CTACCCCTGGC CATGAGCTGG ACCTCGTTGT GCCCGTCTC ACCTTCTGC  
9801 AGTTCTTCTT CTATGTTGGC TGGCTGAAGG TGGGCTCTC CAGGGCCCTG  
9851 CTGGGCTGGA GGCATGGCCA GAGGGTCTC GGCCAGCAGC TGCTTGAGAC  
9901 GAGGATGCAG TGTCAGGAAA GGAAGGTCTC ACGGGTAGAA AGCAGCCAGG  
9951 CGTGGTGGCG CACACCTGTA ATCCAGCTA CTCGGGAGGC TGAGGCAGGA  
10001 GAATCGCTTG AACCCGGGAG GCGGAGGTTG TGgtgagttg agatcgtgcc  
10051 actgcactcc agcctgggca aaagaatgaa actctatctc aaaaacaaca  
10101 acaacaacaa aacaaagccc taaggttcag aagcccctgc ctttagaag  
10151 cagagcgaac actctcctat taagatgctg ttgggtgtct ttttactca  
10201 gtagctgtcc agtattctcc acacagcata atagacagat tctaatacaa  
10251 atttcttcaa ctcttaattc ctctttgtg ccaccatttt ttcttctacc  
10301 tcctaattta tgaatgggtt agtatgctct gcttctgcat tgagacaaaa  
10351 tacagagaga gagaaagatc tatcttaatc ccgccccatt ttagttggaa  
10401 aaaaacttta ttaaatacagg caagtaaaat ccgccaagga ttgnnnnnnn  
10451 nnnagatggt ctgaatcaga gagttttctc tcgagctctt tatctttcct  
10501 tccttatggt gccacccac tctctctcac ttctacctt cctttatctt  
10551 ttggtaatgg ggggtgaagt ctctgtctct gcccttctg tcaactgtac  
10601 acacacacac acacacacac acacacacac acacacacac attcatattc  
10651 ctctaaattc cccctgcacc cccagttatc tttggtttct gcagatcaaa  
10701 acaaatcaca cttttatgct tgaaattctc cagggtgcc cagtggcctg  
10751 caagatgtcc cctggacccc taaggcagac gcgtgtcacc tcttcggggc  
10801 tttgttaggg catttttag gttgctatcc aggaatctgc ccacctagac  
10851 tgccctttag ttcagcccag cttcagtata tatctctggt gcatgaatga

FIG. 1D

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10901 ataaaattat gcaactccag gtaagataca tgaggtgaga taaaggcagt  
10951 gactcagccg agtgatacac tcagggacag ctgtgggtgt tcaggggaag  
11001 actggctcag aagagttaga ggggctgtgt ccagaagtgt gtgggtgcct  
11051 acaagtgtgg ggggctggag ccctaaactc tgcctttgaa gacagtggct  
11101 aggcaggaag ggcttcatgg ggtgtggaaa tagcagcagc tgaggtttaa  
11151 agggggaagc tggctttgag gaggctctgc tgagggttta cagagcctca  
11201 cctgtcccca agGTGGCAGA GCAGCTCATC AACCCCTTIG GAGAGGATGA  
11251 TGATGATTT GAGACCAACT GGATGTGCGA CAGGAATTIG CAGgtatggg  
11301 gagagggaga gaaaccatac catggacctt ccccaaagtg gacccaaaga  
11351 gagctcctcc ctctgcagc cagtcattca ctcacaggat tctcacctca  
11401 atctttgagg ctgcaggcag gcacccatct ccccatitca caggcagga  
11451 aactgaggtc cagagagagg gagagatCcc tccaagtcac caggacata  
11501 caaggtcctg cctgggatga tctttctgtg ggacttcttc tgtccctggt  
11551 gaccagGTGT CCTGTGTCG TGTGGATGAG ATGCACCAGG ACCTGCCTCG  
11601 GATGGAGCCG GACATGTACT GGAATAAGCC CGAGCCACAG CCCCCCTACA  
11651 CAGCTGCTTC CGCCCAGTTC CGTCGAGCCT CCTTTATGGG CTCCACCTTC  
11701 AACATCAGgt gtggccagag ccagggggct ggggtgggaag cccctcctag  
11751 tgcaggggtc tgcttaggaa cttagaatag cactagttaa tgcatacagg  
11801 ttgcttcagt aagtgtcagg cactgtacta tgctctttat aaacattaac  
11851 tatttttttc ctccaataa ttctggttg ttatcccaag tthcagata  
11901 attaaagtac aggttcagag agagtaagtt gtccaaggcc acatagctac  
11951 caaatgggtc atttgctact cgaaggacag cctatgatca gtgatgcagt  
12001 ggaacgttag gacctggctc ttgtcatcca gaactatgtt ttcttttctt  
12051 tttgagacag tatctcgctc tgtcgcccag gttggagcgc agtggcgtga  
12101 tcttggtcga ctgcaacctc cgctcctggt gttcaagtga ttctcctgct  
12151 tcagcctccc cagtagctgg gattacagggt gcccacaacc acaactggct  
12201 aatttttgta cttttagtag agatgagggt tcaccatgtt ggccaggctg  
12251 gtctccaact cctgaccagt aatctgcccg ctttggcctc ccaaatgtct  
12301 ggaattatag gtgtcaaaac tatgttttct gataagctac gatgcttggg  
12351 tgggaagtgg aagtggggtt ccctgggatg ggggaggggc agcaaagtcc  
12401 cagcaggcag ccaggccatc acagggtacct cctgaattga cttgtccta  
12451 ccgagtaaaag ggctcaggcc acccacagca gccagactta tccccacatg  
12501 gtcccacttc cctgattcca tctgaatccc tcttgagctg cagtgggctg  
12551 aagggtatc ccagctggct ctttctcccc aggacaacag agttgaaagt  
12601 gccctggaga gtgttgggca catgtcagggt ttcatactca aggttttctt  
12651 ccacgggtatc cagtgtgtgt ctgcttgggt ctttctttt tttttttta  
12701 aacggagttt cactcttgtt gccagagct ggagtgcagt ggcataatct  
12751 cggctcactg caacctccgc ctcccagatt caagcaattc tcctgcctca  
12801 gcatcctgag tagctgggat tataggtgcc agccaccaag cccggcta  
12851 ttttgattt ttagtagaga cagtttcacc atgttgcca ggctggctc  
12901 gaactcctga cctcaggtga tccacctcc tcagcctccc aaagtgtctg  
12951 gattacatgt gtgagccact gtgcctggct gcttgttctt ttaagaacca  
13001 aatatcctac tagactgcaa tgcagtttaa ctacagtcta tagatactgt  
13051 gaggaatggt tgggaaggct atcaaatgaa ggctggaggc ttgcttaggt  
13101 cagaaacatt tctggaggat gactttgagc cctaactggt ctgtacccca  
13151 gcagctgaag gttgttgagg gatggggagg gctgaaaaca gaacgataaa  
13201 gcatagacct tgtctccaag gaatgcacaa tttatggagg gagctcaaac  
13251 ccaagtctca aactctggat acaaggatca agtactgga tgtccagaaa  
13301 agggacagaa catggaacac agtcatattt gtctgcatgg gaggcggtt  
13351 ccagctgggt ctggagctga gccatggaac atgggaagaa tctgaacttg  
13401 ggcaagggca ggccatactc tctggtagat aagctttcct tgcagggtaa  
13451 aggtctgggg ctcccgggat gcctgttgct aggaagtcaa atttctctt  
13501 gtggatgtca ctcccagttg gaaccacaaa ttcttggcat tgcccagagt  
13551 cactcatggg cctcatctga accactcatg ccagggcacc agtgtttctg

FIG.1E

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13601 actgcctgga gtgaggggtt ttacagggga agtgaatgat gaggaggcct  
13651 ttacacgcca ggaggggttg ttgcgggggt tggatgttaa ctctggtcaa  
13701 gagggaatca acaaacagtg aggtgagctg ggcctggagg gatcaccggg  
13751 aggtacagta cagatcagga gagaggtgag agctggggca tgggtaggaa  
13801 gacggtgttg ccttggcttg ggccaactga gagagaggag cgggggtaag  
13851 ggagaagtaa ggccaggtgt tggctctttg tccactggct cagccctgca  
13901 tctcctgttt ctttccagCC TGAACAAAGA GGAGATGGAG TTCCAGCCCA  
13951 ATCAGGAGGA CGAGGAGGAT GCTCACGCTG GCATCATTGG CCGCTTCCTA  
14001 GGCCTGCAGT CCCATGATCA CCATCCTCCC AGGGCAAACCT CAAGGACCAA  
14051 ACTACTGTGG CCCAAGAGGG AATCCCTTCT CCACGAGGGC CTGCCCAAAA  
14101 ACCACAAGGC AGCCAAACAG AACGTTAGGG GCCAGGAAGA CAACAAGGCC  
14151 TGGAAGCTTA AGGCTGTGGA CGCCTTCAAG TCTGCCCCAC TGTATCAGAG  
14201 GCCAGGCTAC TACAGTGCCC CACAGACGCC CCTCAGCCCC ACTCCCATGT  
14251 TCTTCCCCCT AGAACCATCA GCGCCGTCAA AGCTTACAG TGTACAGGC  
14301 ATAGACACCA AAGACAAAAG CTAAAGACT GTGAGTTCTG GGGCCAAGAA  
14351 AAGTTTTGAA TTGCTCTCAG AGAGCGATGG GGCCTTGATG GAGCACCCAG  
14401 AAGTATCTCA AGTGAGGAGG AAAACTGTGG AGTTTAACCT GACGGATATG  
14451 CCAGAGATCC CCGAAAATCA CCTCAAAGAA CCTTTGGAAC AATCACCAC  
14501 CAACATACAC ACTACACTCA AAGATCACAT GGATCCTTAT TGGGCTTGG  
14551 AAAACAGgtc tgtcctccac ctgaaccagg ggcactgcat tgcctgtgc  
14601 cccaccccag cttcccttgc tctgagccta cccttccctc acaatttctt  
14651 agggttccat cactgccaga gcacactgga cctacgcccga gactggctt  
14701 ggggtatata cttggccacc ttcacagggga tcttagggaa gtgttcggga  
14751 ccttttctca cttcaccctg gtatcacccg gaagacttct tgggaccagg  
14801 tgaaggaaga tgaggttggt ctgaccagaa tgctgctgga gaactgccc  
14851 agggctgaca ggccaggctt agctgagcag atgttatcac tggccccaac  
14901 ttactttgag caaggggtgc tgacccaaaa ccatgagggt gcagtcagct  
14951 ggatgacaga tgaacacttc ccccataact atttagggta gtacacaagc  
15001 actacaggaa aggggtggcag gaactgcctc actcctagga actggtagat  
15051 ggtgaggttg aggggtgtcca gcgccattag gtcattttct cactgccttg  
15101 gaacctcacc aaaatacttc ttgcttcctt ggggtcagcc caaagctgtc  
15151 acaaaatcag atatttccct ttattccaga tttcctggac actgtcacc  
15201 aattataaac accccacttc agacccaatc acgtgggagg aagtgtact  
15251 tcccttttct ggattctcaa gcagttactt tcacgggtca gaacacgcag  
15301 ctattatgat tgaaacctta aaagggcaac aatttcaatc ttgcttctag  
15351 gctaagacag gaacttggca aacatctgtg gcctgttcag caaaggatgt  
15401 tcataattta gaactttgtc ttgggctggg tgtggaggga agtgaatcac  
15451 aggaggtcag gagtttgaga ccaacctggc caacatgatg aaaccccatc  
15501 tctaccaaaa aaaatacaaa tcagctggcc gtcgtggtgt gcctgtagtc  
15551 ccaacgcagg aggttgaggg gagaattgct tgaacccagg aggtggtggt  
15601 tgcatgaga ttgagcaact gcaatccagc ctgggcgacg gagtgagact  
15651 gtctcaaaaa aaaaaaaaaa aggatcgtct caacctttgc cctcctactg  
15701 caacattttg gtatttgaaa tgaagggtacc ttccatactt atgctgttaa  
15751 tactttcatt ctactagGG ATGAAGCACA TTCC7AACCT GCTTCCTAAT  
15801 GGGGATGCTT CGCCAGCCAG GTCCTCACCT GTGTGTACAC CAGCAGGACA  
15851 CTGATCCAGT CACAGCCATA CAGCTGTCCA CACTGAAGAA CGTGTCTTAC  
15901 AACAGCCTGA ATCAAATGGT TAGCTTAATA GATAAAAATC CCAGACTACT  
15951 TCAGCCTTTA ATGCCTTTTA TTCATAAAAA CTGTGAAAGC TAGACTGAAC  
16001 CATTGGAAAC ATTTAACTCA GACTCTGGAT TCAGAGTCGG GAACCCCTAG  
16051 TTCTATCTGA ATCCAAGACA GCCACACCTT AGTATACTGC CCAAATAAT  
16101 GAGTTTAATA AATACAAATA CTCGT (SEQ.ID.NO.:1)

FIG.1F

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CAGGGAGTCCCACCAGCCTAGTCGCCAGACCTTCTGTGGGATCATCGGAC 50  
CCACCTGGAACCCACCTGACCCAAGCCCACCTGCTGCAGCCCACTGCCT 100  
GGCCATGACCATCACTTACACAAGCCAAGTGGCTAATGCCCGCTTAGGCT 150  
CCTTCTCCCGCTGCTGCTGTGCTGGCGGGGAGCATCTACAAGCTGCTA 200  
TATGGCGAGTTCTTAATCTTCTGCTCTGCTACTACATCATCCGCTTTAT 250  
TTATAGGCTGGCCCTCACGGAAGAACAACAGCTGATGTTTGAGAACTGA 300  
CTCTGTATTGCGACAGCTACATCCAGCTCATCCCCATTTCTTCGTGCTG 350  
GGCTTCTACGTGACGCTGGTGTGACCCGCTGGTGAACCAAGTACGAGAA 400  
CCTGCCGTGGCCGACCGCCTCATGAGCCTGGTGTGGGCTTCGTGGAAG 450  
GCAAGGACGAGCAAGGCCGGCTGCTGCGGCGCAGCTCATCCGCTACGCC 500  
AACCTGGGCAACGTGCTCATCCTGCGCAGCGTCAGCACCGCAGTCTACAA 550  
GCGCTTCCCCAGCGCCCAGCACCTGGTGAAGCAGGCTTTATGACTCCGG 600  
CAGAACAACAAGCAGTTGGAGAACTGAGCCTACCACACAACATGTTCTGG 650  
GTGCCCTGGGTGTGGTTTGCCAACCTGTCAATGAAGGCGTGGCTTGGAGG 700  
TCGAATCCGGGACCTATCCTGCTCCAGAGCCTGCTGAACGAGATGAACA 750  
CCTTGCGTACTCAGTGTGGACACCTGTATGCCTACGACTGGATTAGTATC 800  
CCACTGGTGATACACAGGTGGTGAAGTGTGGCGGTGTACAGCTTCTTCT 850  
GACTTGTCTAGTTGGGCGGAGTTTCTGAACCCAGCCAAGGCCTACCCTG 900  
GCCATGAGCTGGACCTCGTTGTGCCCGTCTTACGTTTCTGCAGTTCTTC 950  
TTCTATGTTGGCTGGCTGAAGGTGGCAGAGCAGCTCATCAACCCCTTTGG 1000  
AGAGGATGATGATGATTTTGGACCAACTGGATTGTGACAGGAATTTGC 1050  
AGGTGTCCCTGTTGGCTGTGGATGAGATGCACCAAGGACCTGCCTCGGATG 1100  
GAGCCGGACATGTACTGGAATAAGCCCGAGCCACAGCCCCCTACACAGC 1150  
TGCTTCCGCCCAGTTCCGTCGAGCCTCCTTATGGGCTCCACCTTCAACA 1200  
TCAGCCTGAACAAAGAGGAGATGGAGTTCCAGCCCAATCAGGAGGACGAG 1250  
GAGGATGCTCACGCTGGCATCATTGGCCGCTTCTAGGCCTGCAGTCCCA 1300  
TGATCACCATCCTCCCAGGGCAAACCTCAAGGACCAAACTACTGTGGCCCA 1350  
AGAGGGAATCCCTTCTCCACGAGGGCCTGCCCAAAACCAAGGCAGCC 1400  
AAACAGAACGTTAGGGGCCAGGAAGACAACAAGGCCTGGAAGCTTAAGGC 1450  
TGTGGACGCTTCAAGTCTGGCCCACTGTATCAGAGGCCAGGCTACTACA 1500  
GTGCCCCACAGACGCCCCCTCAGCCCCACTCCCATGTTCTTCCCCCTAGAA 1550  
CCATCAGCGCCGTCAAAGCTTCAAGTGTACAGGCATAGACACCAAAGA 1600  
CAAAAGCTTAAAGACTGTGAGTTCTGGGGCCAAGAAAAGTTTTGAATTGC 1650  
TCTCAGAGAGCGATGGGGCCTTGATGGAGCACCCAGAAGTATCTCAAGTG 1700  
AGGAGGAAAACCTGTGGAGTTTAACTGACGGATATGCCAGAGATCCCCGA 1750  
AAATCACCTCAAAGAACCCTTGGAAACAATCACCACCAACATACACACTA 1800  
CACTCAAAGATCACATGGATCCTTATTGGGCTTGGAAAACAGGGATGAA 1850  
GCACATTCTAACCTGCTTCTAATGGGGATGCTTCGCCAGCCAGGTCTCT 1900  
CACCTGTGTGTACACCAGCAGGACACTGATCCAGTCACAGCCATACAGCT 1950  
GTCCACACTGAAGAACGTGTCTTACAACAGCCTGAATCAAATGGTTAGCT 2000  
TAATAGATAAAAAATCCCAGACTACTTCAGCCTTTAATGCCTTTTATTCAT 2050  
AAAAACTGTGAAAGCTAGACTGAACCATTTGGAACATTTAACTCAGACTC 2100  
TGGATTGAGAGTCGGGAACCCCTTAGTTCTATCTGAATCCAAGACAGCCAC 2150  
ACCTTAGTATACTGCCCAAACTAATGAGTTTAAATAATAAATACTCGT 2200  
TAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA (SEQ. ID. NO. : 2)

FIG.2

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MTITYTSQVANARLGSFSRLLLCWRGSIYKLLYGEFLIFLLCYIIIRFIY 50  
RLALTEEQQLMFEKLTLYCDSYIQLIPISFVLGFYVTLVVTRWWNQYENL 100  
PWPDRMLSLVSGFVEGKDEQSRLLRRTLIRYANLGNVLIIRSVSTAVYKR 150  
FPSAHLVQAGFMTPAEHKQLEKLSLPHNMFVWPVWFANLSMKAWLGGR 200  
IRDPILLQSLLNEMNLTQTQCGHLYAYDWISIPLVYTQVTVAVYSFFLT 250  
CLVGRQFLNPAKAYPGHELDLVVPVFTFLQLFLYVGWLKVAEQLINPFGE 300  
DDDDFETNWI VDRNLQVSLLAVDEM HQDLPRMEPDMYWNKPEPQPPYTAA 350  
SAQFRRASFMGSTFNISLNKEEMEFQPNQDEEDAHAGIIGRFLGLQSHD 400  
HHPPRANSRTKLLWPKRESLLHEGLPKNHKAAKQNVRGQEDNKAWKLKAV 450  
DAFKSGPLYQRPGYYSAPQTPLSPTPMFFPLEPSAPSKLHSVTGIDTKDK 500  
SLKTVSSGAKKSFELLSESDGALMEHPEVSQVRRKTVEFNLTDMPEIPEN 550  
HLKEPLEQSPTNIHTTLKDHPYWALENRDEAHS (SEQ.ID.NO.:3)

FIG.3



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CAGGGAGTCCCACCAGCCTAGTCGCCAGACCTTCTGTGGGATCATCGGAC 50  
CCACCTGGAACCCACCTGACCCAAGCCACCTGCTGCAGCCCACTGCCT 100  
GGCCATGACCATCACTTACACAAGCCAAGTGGCTAATGCCCGCTTAGGCT 150  
CCTTCTCCCGCCTGCTGCTGTGCTGGCGGGGAGCATCTACAAGCTGCTA 200  
TATGGCGAGTTCTTAATCTTCTGCTCTGCTACTACATCATCCGCTTTAT 250  
TTATAGGCTGGCCCTCACGGAAGAACAACAGCTGATGTTTGAGAACTGA 300  
CTCTGTATTGCGACAGCTACATCCAGCTCATCCCCATTTCTTCGTGCTG 350  
GGCTTCTACGTGACGCTGGTCGTGACCCGCTGGTGGAACCAAGTACGAGAA 400  
CCTGCCGTGGCCCGACCGCCTCATGAGCCTGGTGTCGGGCTTCGTGCAAG 450  
GCAAGGACGAGCAAGGCCGGCTGCTGCGGCGCAGCTCATCCGCTACGCC 500  
AACCTGGGCAACGTGCTCATCTGCGCAGCGTCAGCACCGCAGTCTACAA 550  
GCGCTTCCCCAGCGCCAGCACCTGGTGCAAGCAGGCTTTATGACTCCGG 600  
CAGAACACAAGCAGTTGGAGAACTGAGCCTACCACACAACATGTTCTGG 650  
GTGCCCTGGGTGTGGTTTGCCAACCTGTCAATGAAGGCGTGGCTTGGAGG 700  
TCGAATCCGGGACCCTATCCTGCTCCAGAGCCTGCTGAACGAGATGAACA 750  
CCTTGCGTACTCAGTGTGGACACCTGTATGCCTACGACTGGATTAGTATC 800  
CCACTGGTGTATACACAGGTGGTGACTGTGGCGGTGTACAGCTTCTTCT 850  
GACTTGTCTAGTTGGGCGGCAGTTTCTGAACCCAGCCAAGGCCATCCCTG 900  
GCCATGAGCTGGACCTCGTTGTGCCCGTCTTCAGTTTCTGCAGTTCTTC 950  
TTCTATGTTGGCTGGCTGAAGGTGGGCTCTCCAGGGCCCTGCTGGGCTG 1000  
GAGGCATGGCCAGAGGGGTCTAGGCCAGCAGCTGCTTGAACGAGGATGC 1050  
AGTGTACAGAAAGGAAGGTCTACGGGTAGAAAGCAGCCAGGCGTGGTGG 1100  
CGCACACCTGTAATCCCAGCTACTCGGGAGGCTGAGGCAGGAGAATCGCT 1150  
TGAACCCGGGAGGCGGAGGTTGTGGTGGCAGAGCAGCTCATCAACCCCTT 1200  
TGGAGAGGATGATGATGATTTTGAACCAACTGGATTGTGACAGGAATT 1250  
TGCAGGTGTCCCTGTTGGCTGTGGATGAGATGCACCAGGACCTGCCTCGG 1300  
ATGGAGCCGGACATGTACTGGAATAAGCCCGAGCCACAGCCCCCTACAC 1350  
AGCTGCTTCCGCCAGTTCCGTCGAGCCTCCTTTATGGGCTCCACCTTCA 1400  
ACATCAGCCTGAACAAAGAGGAGATGGAGTTCCAGCCCAATCAGGAGGAC 1450  
GAGGAGGATGCTCACGTGGCATCATTGGCCGCTTCTTAGGCCTGCAGTC 1500  
CCATGATCACCATCCTCCCAGGGCAAACTCAAGGACCAAACTACTGTGGC 1550  
CCAAGAGGGAATCCCTTCTCCACGAGGGCCTGCCCAAAAACCACAAGGCA 1600  
GCCAAACAGAACGTTAGGGGCCAGGAAGACAACAAGGCCTGGAAGCTTAA 1650  
GGCTGTGGACGCCTTCAAGTCTGGCCCACTGTATCAGAGGCCAGGCTACT 1700  
ACAGTGCCCCACAGACGCCCTCAGCCCCACTCCCATGTTCTTCCCCCTA 1750  
GAACCATCAGCGCCGTCAAAGCTTCACAGTGTACAGGCATAGACACCAA 1800  
AGACAAAAGCTTAAAGACTGTGAGTTCTGGGGCCAAGAAAAGTTTTGAAT 1850  
TGCTCTCAGAGAGCGATGGGGCCTTGATGGAGCACCCAGAAGTATCTCAA 1900  
GTGAGGAGGAAAAGTGTGGAGTTTAACTGACGGATATGCCAGAGATCCC 1950  
CGAAAATCACCTCAAAGAACCTTTGGAACAATCACCACCAACATACACA 2000  
CTACACTCAAAGATCACATGGATCCTTATTGGGCTTGGAAAACAGGGAT 2050  
GAAGCACATTCTAACCTGCTTCCTAATGGGGATGCTTCGCCAGCCAGGT 2100  
CCTCACCTGTGTGTACACCAGCAGGACACTGATCCAGTCACAGCCATACA 2150  
GCTGTCCACACTGAAGAACGTGTCCTACAACAGCCTGAATCAAATGGTTA 2200  
GCTTAATAGATAAAAATCCCAGACTACTTCAGCCTTTAATGCCTTTTATT 2250  
CATAAAAAGTGTGAAAGCTAGACTGAACCATTTGGAACATTTAACTCAGA 2300  
CTCTGGATTGAGAGTCGGGAACCTTAGTTCTATCTGAATCCAAGACAGC 2350  
CACACCTTAGTATACTGCCCAACTAATGAGTTTAATAAATACAAATACT 2400  
CGTAAAAAAAAAAAAAAAAAAAAAAAAAAAAA(SAQ. ID. NO. : 4)

FIG.4

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MTITYTSQVANARLGSFSRLLLCWRGSIYKLLYGEFLIFLLCYYIIRFIY 50  
RLALTEEQQLMFEKLTLYCDSYIQLIPISFVLGFYVTLVVTRWWNQYENL 100  
PWPDRMLSLVSGFVEGKDEQGRLLRRTLIRYANLGNVLILRSVSTAVYKR 150  
FPSAQHLVQAGFMTPAEHKQLEKLSLPHNMFVWPWWFANLSMKAWLGGR 200  
IRDPILLQSLLNEMNLTQTQCGHLYAYDWISIPLVYTQVVTAVYSFFLT 250  
CLVGRQFLNPAKAYPGHELDLVVPVFTFLQFFFYVGWLKVGLSRALLGWR 300  
HGQRGHGQQLLETRMQCQERKVSRESSQAWWRTPVIPATREAEAGESLE 350  
PGRRLWWQSSSSTPLERMMILRPTGLSTGICRCPCWLWMRCTRTCLGW 400  
SRTCTGISPSHSPPTQLLPSSVEPPLWAPPSTSA (SEQ.ID.NO.:5)

FIG.5

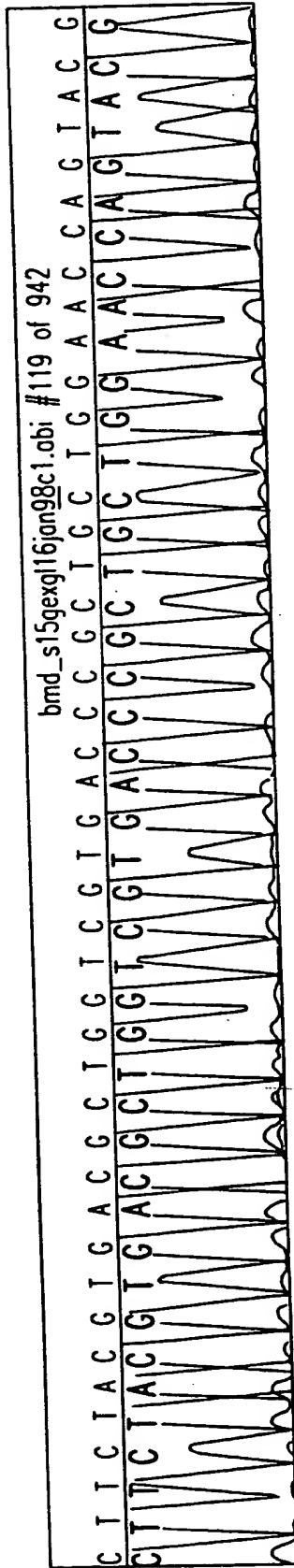


FIG. 6A

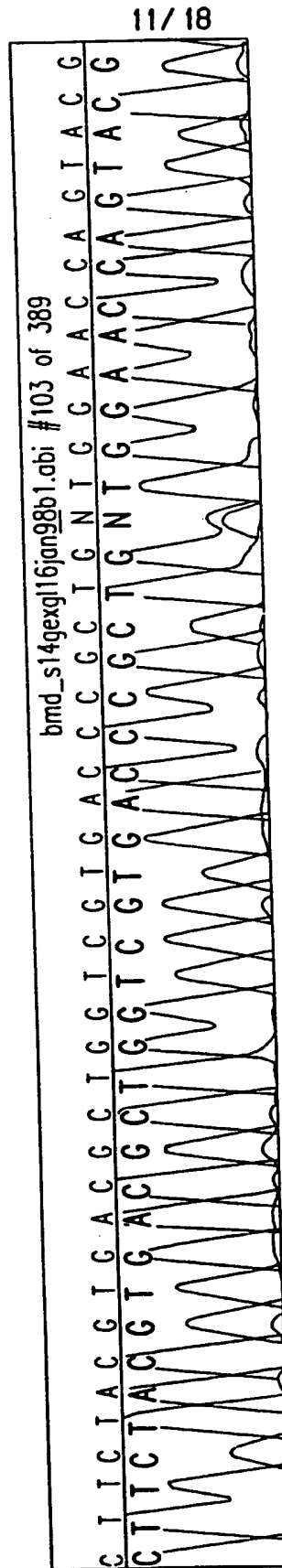


FIG. 6B

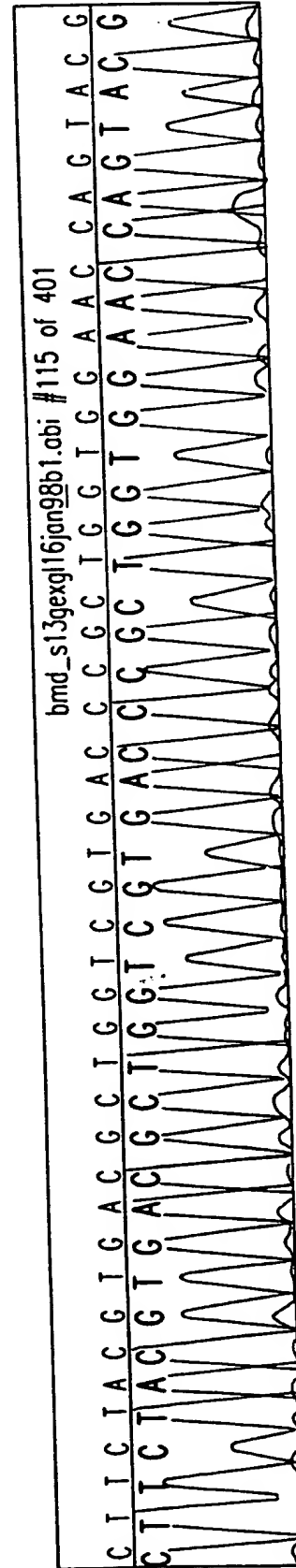
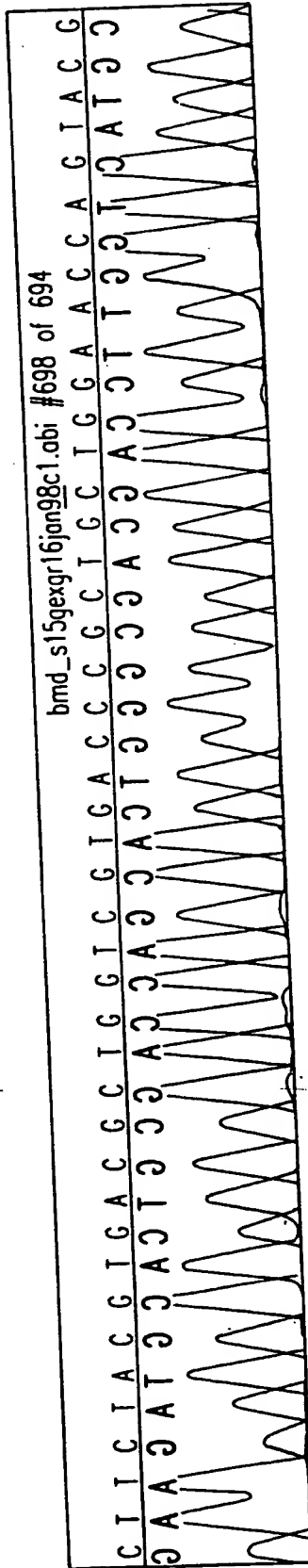


FIG. 6C



**FIG. 6D**

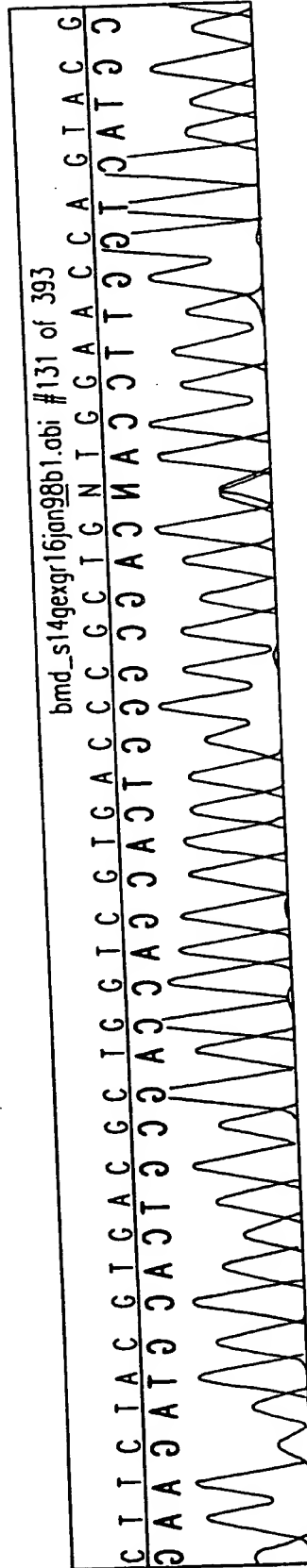
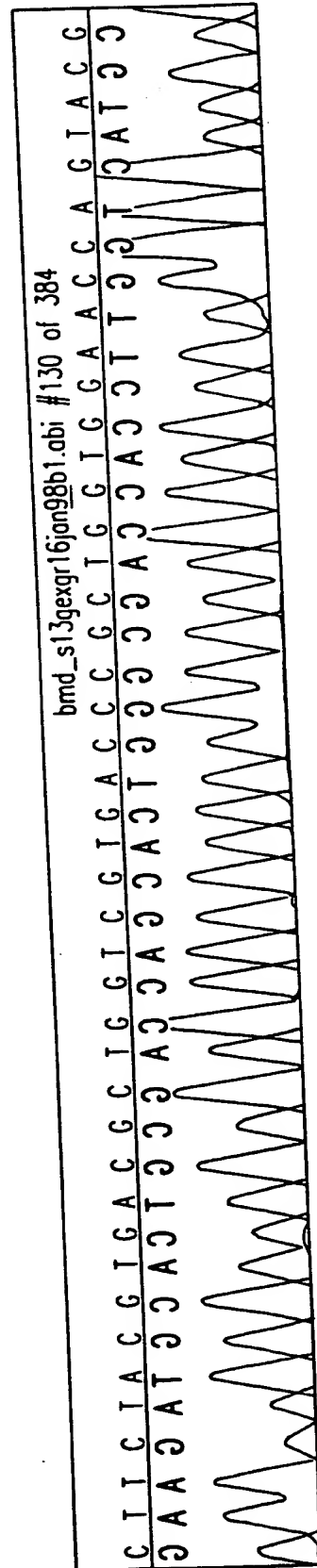


FIG. 6E



**FIG. 6F**

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GenBank/SwissProt  
accession numbersProtein sequenceSEQ.ID.NO.

CG1CE\_protein

IPISFVLGFY VTLVVTRW~~WN~~ QYENLPWPDR 2 (part) *same*

af016687 (PID:g2315833)	IPLTFMLGFE VTIIVGRW <del>ND</del> IFLNIGWVDN 28 <i>mouse</i>
z73105 (PID:e242363)	IPLTFMLGFE VTIIVRRW <del>ND</del> IFANLGWVEN 29
z73422 (PID:e244423)	IPLEFVLGFE VTIVVDRW <del>TK</del> LWRTVGFIDD 30
z73422 (PID:e244542)	IPLEFVLGFE VTTVVNRW <del>TK</del> LYQTIGFIDN 31
p34577	VPLDWMLGFE IAGVLRREWY LYDIIGFIDN 32
p34672	IPLNFMLGFE VTAVVNRW <del>TY</del> LYQIIGFIDN 33
p34319	LPLNFVLGFE CNIIIRRW <del>LK</del> LYTSLGNIDN 34
z68335 (PID:e217363)	IPINFMLGFE VTTVINRW <del>MT</del> QFANLGMIDN 35
z68753 (PID:e218704)	IPLTFLLGFE VSFVVARW <del>GS</del> ILNGIGWIDD 36
af025458 (PID:e2429439)	IPVTFMLGFY VSIVYNRW <del>TK</del> VFDNVGWIDT 37
u28412 (PID:g849242)	LPLTFMLGFE VTTVFERW <del>RS</del> ALNVMPFIES 38
u70848 (PID:g1572760)	IPLTFLLGFY VSNVVSRRW <del>WR</del> QFETLRWPED 39
z81074 (PID:e351507)	IPLTFLLGFY VSNVVARW <del>WR</del> QFETLYWPED 40
q09379	IPLTFLLGFY VAMIVRRW <del>WD</del> CCQLISWPDH 41
z72509 (PID:e239377)	IPLSFLGFE VSLIVARW <del>WE</del> QFNCISWPK 42
z83221 (PID:e349023)	VPMQPMLGYE IGMVGERW <del>GE</del> SFENVSYIEK 43

FIG.7

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1 GTGCCAAGCCATGACTATCACCTACACAAACAAAGTAGCCAATGCCCGCCTCGGTTTCGTT 60  
1 M T I T Y T N K V A N A R L G S F 17

61 CTCGTCCCTCCTCCTGTGCTGGCGAGGCAGCATCTACAAGCTGCTGTATGGAGAATTCCT 120  
18 S S L L L C W R G S I Y K L L Y G E F L 37

121 TGTCTTCATATTCCTCTACTATTCCATCCGTGGACTCTACAGAATGGTTCTCTCGAGTGA 180  
38 V F I F L Y Y S I R G L Y R M V L S S D 57

181 TCAGCAGCTGTTGTTTGAGAAGCTGGCTCTGTACTGCGACAGCTACATTCAGCTCATCCC 240  
58 Q Q L L F E K L A L Y C D S Y I Q L I P 77

241 TATATCCTTCGTTCTGGGTTTCTATGTTACATTGGTGGTGAGCCGCTGGTGGAGCCAGTA 300  
78 I S F V L G F Y V T L V V S R W W S Q Y 97

301 CGAGAACTTGCCGTGGCCCGACCGCCTCATGATCCAGGTGTCTAGCTTCGTGGAGGGCAA 360  
98 E N L P W P D R L M I Q V S S F V E G K 117

361 GGATGAGGAAGGCCGTTTGCTGCGGCGCACGCTCATCCGCTACGCCATCCTGGGCCAAGT 420  
118 D E E G R L L R R T L I R Y A I L G Q V 137

421 GCTCATCCTGCGCAGCATCAGCACCTCGGTCTACAAGCGCTTTCCCACTCTTCACCACCT 480  
138 L I L R S I S T S V Y K R F P T L H H L 157

481 GGTGCTAGCAGGTTTTATGACCCATGGGGAACATAAGCAGTTGCAGAAGTTGGGCCTACC 540  
158 V L A G F M T H G E H K Q L Q K L G L P 177

541 ACACAACACATTCTGGGTGCCCTGGGTGTGGTTTGCCAACTTGTCATGAAGGCCTATCT 600  
178 H N T F W V P W V W F A N L S M K A Y L 197

601 TGGAGGTGCAATCCGGGACACCGTCCTGCTCCAGAGCCTGATGAATGAGGTGTGTACTTT 660  
198 G G R I R D T V L L Q S L M N E V C T L 217

661 GCGTACTCAGTGTGGACAGCTGTATGCCTACGACTGGATAAGTATCCCATTGGTGTACAC 720  
218 R T Q C G Q L Y A Y D W I S I P L V Y T 237

721 ACAGGTGGTGACAGTGGCAGTATACAGCTTTTTCCTTGCTGCTTGATCGGGAGGCAGTT 780  
238 Q V V T V A V Y S F F L A C L I G R Q F 257

FIG.8A

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781 TCTGAACCCAAACAAGGACTACCCAGGCCATGAGATGGATCTGGTTGTGCCTGTCTTCAC 840  
258 L N P N K D Y P G H E M D L V V P V F T 277

841 AATCCTGCAATTCTTATTCTACATGGGCTGGCTGAAGGTGGCAGAACAGCTCATCAACCC 900  
278 I L Q F L F Y M G W L K V A E Q L I N P 297

901 CTTGCGGGGAGGACGATGATGATTTTGAAGTAACTGGATCATTGACAGAAACCTGCAGGT 960  
298 F G E D D D D F E T N W I I D R N L Q V 317

961 GTCCCTGTTGTCCGTGGATGGGATGCACCAGAACTTGCCTCCCATGGAACGTGACATGTA 1020  
318 S L L S V D G M H Q N L P P M E R D M Y 337

1021 CTGGAACGAGGCAGCGCCTCAGCCGCCCTACACAGCTGCTTCTGCCAGGTCTCGCCGGCA 1080  
338 W N E A A P Q P P Y T A A S A R S R R H 357

1081 TTCCTTCATGGGCTCCACCTTCAACATCAGCCTAAAGAAAGAAGACTTAGAGCTTTGGTC 1140  
358 S F M G S T F N I S L K K E D L E L W S 377

1141 AAAAGAGGAGGCTGACACGGATAAGAAAGAGAGTGGCTATAGCAGCACCATAGGCTGCTT 1200  
378 K E E A D T D K K E S G Y S S T I G C F 397

1201 CTTAGGACTGCAACCCAAAACTACCATCTTCCCTTGAAAGACTTAAAGACCAAACCTATT 1260  
398 L G L Q P K N Y H L P L K D L K T K L L 417

1261 GTGTTCTAAGAACCCCTCCTCGAAGGCCAGTGTAAGGATGCCAACCAGAAAAACCAGAA 1320  
418 C S K N P L L E G Q C K D A N Q K N Q K 437

1321 AGATGTCTGGAAATTTAAGGGTCTGGACTTCTTGAAATGTGTTCCAAGGTTTAAGAGGAG 1380  
438 D V W K F K G L D F L K C V P R F K R R 457

1381 AGGCTCCCATTTGTGGCCACAGGCACCCAGCAGCCACCCTACTGAGCAGTCAGCACCCCTC 1440  
458 G S H C G P Q A P S S H P T E Q S A P S 477

1441 CAGTTCAGACACAGGTGATGGGCCTTCCACAGATTACCAAGAAATCTGTACATGAAAAA 1500  
478 S S D T G D G P S T D Y Q E I C H M K K 497

1501 GAAAACGTGGAGTTTAACTTGAACATTCCAGAGAGCCCCACAGAACATCTTCAACAGCG 1560  
498 K T V E F N L N I P E S P T E H L Q Q R 517

1561 CCGTTTGGACCAGATGTCAACCAATATACAGGCTCTAATGAAGGAGCATGCAGAGTCCTA 1620

FIG.8B

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518 R L D Q M S T N I Q A L M K E H A E S Y 537

1621 TCCCTACAGGGATGAAGCTGGCACCAAACCTGTTCTCTATGAGTGATGCCTCACAGCCTG 1680  
538 P Y R D E A G T K P V L Y E 551

1681 GCCCTGACTTGCAAGGATGCCAGCAGGGCACTGACCCAGTCAAAGGCACACAAGCAGCG 1740

1741 ACACCCAGGAGTGTGTTCCCACGACAGTCTAGCATGTAACCTCAGAACCAAGAGTACTTAA 1800

1801 TAGTCCTGCCTGAAAACACCTGTATTTTACGATCTTCCCAAACCTAAGGAGTTT AATAAA 1860

1861 CGTGAATATTCTTTTAGGTGAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA 1916

FIG.8C



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1 50  
 Human MTITYTSQVA NARLGSFSRL LLCWRGSIYK LLYGEFLIFL LCYYIIRFIY  
 MouseBestrophin] MTITYTNKVA NARLGSFSSL LLCWRGSIYK LLYGEFLVFI FLYYSIRGLY

51 100  
 Human RLALTEEQQL MFEKLTLYCD SYIQLIPISF VLGFYVTLVV TRWWNQYENL  
 MouseBestrophin] RMVLSSDQQL LFEKLALYCD SYIQLIPISF VLGFYVTLVV SRWWSQYENL

101 150  
 Human PWPDRMLSLV SGFVEGKDEQ GRLLRRTLIR YANLGNVLIL RSVSTAVYKR  
 MouseBestrophin] PWPDRMLIQV SSFVEGKDEE GRLLRRTLIR YAILGQVLIL RSISTSVYKR

151 200  
 Human FPSAQHLVQA GFMTPEAHKQ LEKLSLPHNM FWVPWWVFAN LSMKAWLGGR  
 MouseBestrophin] FPTLHHLVLA GFMTGHEHKQ LQKLGLPHNT FWVPWWVFAN LSMKAYLGGR

201 250  
 Human IRDPILLOSL LNECNTLRTO CGHLYAYDWI SIPLVYTQVV TVAVYSFFLT  
 MouseBestrophin] IRDTVLLQSL MNEVCTLRTO CGQLYAYDWI SIPLVYTQVV TVAVYSFFLA

251 300  
 Human CLVGRQFLNP AKAYPGHELD LVVPVFTFLQ FFFYVGWLKV AEQLINPFGE  
 MouseBestrophin] CLIGRQFLNP NKDYPGHEMD LVVPVFTILQ FLFYMGWLKV AEQLINPFGE

301 350  
 Human DDDDFETNWI VDRNLQVSLL AVDEMHQDLP RMEPDMYWNR PEPQPPYTAA  
 MouseBestrophin] DDDDFETNWI IDRNLQVSLL SVDGMHQNL PMERDMYWNE AAPQPPYTAA

351 400  
 Human SAQFRRASF M GSTFNISLNK EEMEFQPNQE ....DEEDAH AGIIGRFLGL  
 MouseBestrophin] SARSRRHSFM GSTFNISLKK EDLEWSKEE ADTDKESGY SSTIGCFLGL

401 450  
 Human QSHDHPPRA NSRTKLLWPK RESLLHEGLP KNHKAQKQNV RGQEDNKAWK  
 MouseBestrophin] QPKNYHLPLK DLKTKLLCSK NPLL..EGQC KD.....ANQ KNQKD..VWK

451 500  
 Human LKAVIDAFKSA PLYQRPGYYS APQTPLSPTP MFFPLEPSAP SKLHSVTGID  
 MouseBestrophin] FRGLDFLKC V PRFKRRGSHC GPQAPSS... ..HPTEQSAP SS..SDTG..

501 550  
 Human TKDKSLKTVS SGAKKSFELL SESDGALMEH PEVSQVRRKT VEFNLTDMP  
 MouseBestrophin] .....DGPSTDY QEICHMKKKT VEFNL.NIPE

551 596  
 Human IPENHLKE.P LEQSPTNIHT TLKDHMDPYW ALENRDEAHS  
 MouseBestrophin] SPTEHLQRR LDQMSTNIQA LMKEHAESY. ...PYRDEAGT KPVLYE

FIG.9

FIG.10B

• GCL

IPL

OPL

NO

IS

OS

RPE

FIG.10A

FIG.10C